

DQ.A

DECLARATION OF GERHARD BLASEY

I, Gerhard Blasey, declare as follows:

1. My current address is: Henkel KgaA, Department WPT-TE, Building K28, Henkelstrasse 67, D-40191 Dusseldorf. My current job title is Section Head of Process and Technology Development—Detergents.

2. My education after high school is as follows:

1971 – 1974 University of Essen – study of chemistry
1975 – 1981 University of Dortmund – study of chemical engineering
1982 – 1985 University of Dortmund – doctoral thesis

3. My employment history is as follows:

1985 – today: Henkel KgaA
1985 – 1987: Process and Technology Development
1987 – 1989: Detergent Production, Assistant Plant Manager of Zeolite Factory, Sodium Sulfate Factory, Sodium Meta Silicate Factory
1993 – 1996: Detergent Production, Start-Up and Plant Manager of Megaperls Factory

4. I am a member of Verein Deutscher Ingenieure.

5. I have been asked to review United States Patent Application Serial No. 09/380,739 ("739 application"), filed December 15, 1999, and entitled Laundry Detergent Compact Which Disintegrates In Liquids, in order to answer certain questions that are set forth in the following paragraphs.

6. I have been asked whether the cellulose disintegrants described in the application on pages 4 and 8-10 are substantially nonionic, water-insoluble, water-swellable polymeric materials. The cellulose material meet each of these qualifications.
7. Cellulose is well known to be substantially nonionic. As explained in Ullmann's Encyclopedia of Industrial Chemistry, Volume A5, at pages 376-377 (Exhibit A hereto), the basic unit of cellulose is glucose (over 99%). Cellulose contains one carboxyl

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(charged) group per 100 to 1000 anhydroglucose units resulting in a low charge density for the material. It is also well known that cellulose swells in water, but is insoluble in water. Ullmann, supra, at page 383. Also attached as Exhibit B is a 1992 product bulletin of my employer, Rettenmaier, a supplier of cellulose fibers, which reports that material cellulose fibers are insoluble and absorb 2 to 7 times their own weight in liquids.

8. Cellulose is also a polymeric material. The Pure Appl. Chem. 1996, 68, 2287-2311, Glossary of Basic Terms in Polymer Science (IUPAC Recommendations 1996) (Exhibit C) defines polymers as follows:

1 – MOLECULES AND MOLECULAR STRUCTURE

1.1 macromolecule; polymer molecule

A molecule of high relative molecular mass, the structure of which essentially comprises the multiple repetition of units derived, actually or conceptually, from molecules follow relative molecular mass.

Notes:

1. In many cases, especially for synthetic polymers, a molecule can be regarded as having a high relative molecular mass is the addition or removal of one or a few of the units has a negligible effect on the molecular properties. This statement fails in the case of certain macromolecules for which the properties may be critically dependent on fine details of the molecular structure.
2. If a part or the whole of the molecule has a high relative molecular mass and essentially comprises the multiple repetition of units derived, actually or conceptually, from molecules of low relative molecular mass, it may be described as either macromolecular or polymeric, or by polymer used adjectively.

Since cellulose consists of long chain molecular units, it meets the definition of polymers given by IUPAC.

9. I have also been asked whether cellulose is a polysaccharide. As explained in Ullmann, supra at pages 79-80, polysaccharides are simply high molecular mass carbohydrates.

Cellulose typically contains in excess of 1000 molecular units, Ullmann, supra at page 377, and the Rettenmaier bulletin, and is clearly a polysaccharide.

10. I have also been asked to compare some of the teachings of the '739 application with the claims of United States Patent No. 6,051,545 ("'545 patent"), as set forth below.
11. Claim 1 of the '545 patent claims a detergent tablet that contains surfactant, detergency builder, and a water-insoluble, water-swellable polymeric material. As a general proposition detergent powders and tablets very commonly include surfactants and builders. As discussed in previous paragraphs, the '739 application describes including cellulose materials in a detergent tablet that are in fact water insoluble and water swellable. These cellulose materials are described throughout the '739 application as functioning as a disintegrating aid.
12. Claim 1 of the '545 patent also recites that the disintegrator particles ("polymeric material") have an average particle dimension of at least 500 micrometers to about 1400 micrometers, and claim 2 recites that at least half the aggregated particles have a particle dimension of at least 700 micrometers. I have been asked to comment on how this compares with the particle sizes recited in the '739 application. My conclusion is that the '739 application and the '545 patent describe largely overlapping particle size ranges.
13. The '739 application on page 8 states that the cellulose granules can have a particle size of from 200 to 6000 micrometers and preferably from 300 to 1500 micrometers. The '545 patent recites particle size ranges in terms of average particle dimensions. An average particle dimension of at least 500 micrometers, for example, means that some of the particles can be smaller than 500 micrometers and some can exceed 500 micrometers, but when all particles are considered as a whole, the average size must be at least 500 micrometers. The '739 application, on the other hand, does not use the term average particle dimension. This means a specification of the range of 300 to 1500 micrometers requires that, to the extent practicable, all the particles must be at least 300 micrometers but no more than 1500 micrometers in size.

14. From a mathematical standpoint, the '739 applications preferred particle range of 300 to 1500 micrometers is very close to the '545 patent's average particle size range of 500 to 1400 micrometers. Looking at the lower end of the ranges, claim 1 of the '545 patent would permit some of the particles to be smaller than the 300 micrometers lower limit described in the '739 patent application. Since the average particle size must be at least 500 micrometers, there cannot be too many particles smaller than 300 micrometers if the minimum average size requirement is to be met. The same is true at the upper end of the size range. While claim 1 would permit some of the particles to be larger than the 1500 micrometers upper limit described in the '739 application, there cannot be too many if the maximum average size requirement of 1400 micrometers of claim 1 is to be met. Aside from the pure mathematical limitations, a requirement of an average particle dimension of at least 500 micrometers is plainly a teaching that the individual particles should not be much smaller than 500 micrometers. Indeed, the '545 patent suggests sieving to eliminate any particles smaller than about 200 micrometers (Column 6, lines 53-56).
15. Claim 1 recites that the disintegrator particles are substantially nonionic such that the charge density of the material does not exceed 10^{-3} . I have been asked whether there is an equivalent teaching in the '739 application. There is in the sense that cellulose is well known to be substantially nonionic. As I explained above, the basic unit of cellulose is glucose (over 99%) which contains one carboxyl (charged) group per 100 to 1000 glucose units, resulting in a charge density for the material not exceeding 10^{-3} .
16. Claim 2 of the '545 patent also recites that the granules are aggregates of particles with a particle dimension no greater than 200 micrometers. This is directly comparable to pages 4 to 6 and 8, and original claim 2 of the '739 application, which teaches forming the cellulose granule from finer particles having a size range of 20 to 200 micrometers, preferably from 40 to 60 micrometers.
17. It should also be noted that the '545 patent teaches the preferred nonionic polymeric materials are based on cellulose. See column 3, lines 28-30. Moreover the polymeric

materials used in Examples 1, 2, 3 and 5 of the '545 patent was "Arbocel A1", a cellulose product made by Rettenmaier that Rettenmaier supplied to Lever Brothers, the owner of the '545 patent. See column 7, lines 46-48. This product was supplied to Lever Brothers a few weeks after the German priority application to the '739 application had been filed. Contrary to the statement in column 7, lines 46-48, Arbocel has not marketed a product under the designation "Arbocel A1". This was an arbitrary designation by Rettenmaier's representative when he supplied the material to Lever Brothers. The Arbocel A1 product was actually an existing Rettenmaier product called Arbocel FT 00G. This is a chemo-thermo-mechanical derived wood pulp product that had been sieved before delivery to Lever Brothers to obtain a particle size range of 300 to 1500 micrometers, precisely the size range described in the '739 application.

18. I have also been asked whether there is any novelty about the recitation in claim 9 of the '545 patent of a multi-layer tablet in which one layer contains surfactant, detergency builder and a polymeric disintegration agent, and at least one other layer contains a lesser concentration of the disintegrator. In my experience, it is typical in the tabletting art to include greater amounts of disintegrator in one region of a tablet than in another region so as to cause the regions to disintegrate or dissolve at different rates. For example, it may be desired to have a detergent dissolve in a wash cycle and a rinsing aid or dye dissolve in a later rinse cycle. One way of achieving this effect is to include a disintegration aid in a region containing the detergent. Claim 9 simply proposes having one region containing surfactant and builder dissolve earlier than at least one other region. In my opinion, there is no novelty in that recited step. It is typical in the art of producing detergent tablets for laundry/dishwashing in which one part should disintegrate/dissolve earlier than another part and providing some active ingredients at an earlier stage of the wash cycle. Therefore, it is obvious to an expert to add a higher content of disintegrant to one part of the tablet.

I hereby declare that all the statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of United States patent Application Serial No. 09/380739 or any patent issued thereon.

Dated: 21/08/01

A handwritten signature consisting of a stylized 'J' and a large, sweeping 'S' or '3' shape, written over a horizontal line.

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